

CLAIMS

What is claimed is:

1. A mold closing device of an injection molding machine for producing plastic parts made of two or more plastic components, comprising:
two outer mold mounting plates supporting mold halves;
a central mold carrier element arranged between the two outer mold mounting plates, the central mold carrier element including two or four opposing mold mounting areas arranged in pairs for affixing two or four corresponding mold halves, the central mold carrier element further including a turning device capable of closing each of the mold halves of the central mold carrier element against the mold halves of the outer mold mounting plates with the aid of a drive mechanism and a mold pressure unit;
a supporting frame supporting the turning device;
a machine frame fixedly connected to the supporting frame and displaceably supporting the outer mold mounting plates; and
columns having two ends and extending through the supporting frame of the central mold carrier element and connecting the outer mold mounting plates to one another, wherein one end of each column is fixedly secured on one of the outer mold mounting plates and the other end of the column includes a piston, which is reversibly guided in a cylinder unit that is connected with the other outer mold mounting plate, said piston and said cylinder unit forming an actuating unit configured to execute an opening and closing

motion of the mold closing device and to produce a closing pressure of the mold closing device.

2. The mold closing device of claim 1, and further comprising at least one Reaction Injection Molding (RIM) device operatively coupled with the outer mold mounting plates.
3. The mold closing device of claim 1, and further comprising at least one Reaction Injection Molding (RIM) device and at least one injection unit which are operatively coupled with the outer mold mounting plates.
4. The mold closing device of claim 1, and further comprising at least one of an injection unit and a Reaction Injection Molding (RIM) device arranged on the supporting frame, which can be brought into an injection connection with at least one of the mold halves that are attached to the mold carrier element.
5. The mold closing device of claim 2, wherein the at least one RIM device is implemented as one or more PUR foaming units.
6. The mold closing device of claim 4, wherein the at least one RIM device is implemented as one or more PUR foaming units.

7. The mold closing device of claim 1, and further comprising at least one processing unit configured to perform processing steps on the plastic parts, when the mold mounting plates are open.
8. The mold closing device of claim 1, wherein the supporting frame is C-shaped and includes an opening that is open towards a loading/unloading side of the injection molding machine.
9. The mold closing device of claim 8, wherein the C-shaped supporting frame has horizontal legs provided with slideways, with at least two columns extending through the horizontal legs and being slidably guided in the slideways.
10. The mold closing device of claim 8, wherein the mold carrier element in the form of a cube is provided with four mold mounting areas for four center mold halves, and wherein at least one processing unit is provided for performing processing steps on a finished plastic part that is located in the mold half facing the opening of the C-shaped supporting frame.

11. A mold closing device of an injection molding machine for producing plastic parts made of two or more plastic components, comprising:
- two outer mold mounting plates supporting mold halves;
 - a central mold carrier element arranged between the two outer mold mounting plates, the central mold carrier element including two or four opposing mold mounting areas arranged in pairs for affixing two or four corresponding mold halves, the central mold carrier element further including a turning device capable of closing each of the mold halves of the central mold carrier element against the mold halves of the outer mold mounting plates with the aid of a drive mechanism and a mold pressure unit;
 - a C-shaped supporting frame supporting the turning device and includes an opening that is open towards a loading/unloading side of the injection molding machine;
 - a machine frame fixedly connected to the supporting frame and displaceably supporting the outer mold mounting plates; and
 - columns extending through the supporting frame of the central mold carrier element and connecting the outer mold mounting plates to one another.
12. The mold closing device of claim 11, wherein the C-shaped supporting frame has horizontal legs provided with slideways, with at least two columns extending through the horizontal legs and being slidably guided in the slideways.

13. The mold closing device of claim 11, wherein the mold carrier element in the form of a cube is provided with four mold mounting areas for four center mold halves, and wherein at least one processing unit is provided for performing processing steps on a finished plastic part that is located in the mold half facing the opening of the C-shaped supporting frame.
14. The mold closing device of claim 11, wherein one of the mold mounting plates is configured as a sandwich plate comprising a mold carrier plate and a support plate in spaced-apart parallel relationship to the mold carrier plate, and further comprising a toggle lever closing system disposed between the support plate and the mold carrier plate.
15. The mold closing device of claim 11, wherein one of the mold mounting plates is configured as a sandwich plate comprising a mold carrier plate and a support plate in spaced-apart parallel relationship to the mold carrier plate, and further comprising a closing system with a hydraulic pressure piston disposed between the support plate and the mold carrier plate.

16. The mold closing device of claim 11, wherein one end of each column is fixedly secured on one of the outer mold mounting plates and the other end of the column includes a piston, which is reversibly guided in a cylinder unit that is connected with the other outer mold mounting plate, said piston and said cylinder unit forming an actuating unit configured to execute an opening and closing motion of the mold closing device and to produce a closing pressure of the mold closing device.
17. The mold closing device of claim 11, and further comprising at least one Reaction Injection Molding (RIM) device operatively coupled with the outer mold mounting plates.
18. The mold closing device of claim 11, and further comprising at least one Reaction Injection Molding (RIM) device and at least one injection unit which are operatively coupled with the outer mold mounting plates.
19. The mold closing device of claim 11, and further comprising at least one of an injection unit and a Reaction Injection Molding (RIM) device arranged on the supporting frame, which can be brought into an injection connection with at least one of the mold halves that are attached to the mold carrier element.

20. The mold closing device of claim 17, wherein the at least one RIM device is implemented as one or more PUR foaming units.
21. The mold closing device of claim 18, wherein the at least one RIM device is implemented as one or more PUR foaming units.
22. The mold closing device of claim 19, wherein the at least one RIM device is implemented as one or more PUR foaming units.